Children’s Awareness of Authority to Change Rules in Various Social Contexts

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Abstract
To investigate children’s awareness of authority to change rules, we showed children (ages 4-7) videos of one child playing a game alone or three children playing a game together. In the group video, the game rule was initiated either: by one of the children, by three children collaboratively or by an adult. They then were asked whether the characters in the videos could change the rules. Children believed that the character could change the rule when playing alone. Their responses to the group video depended on how the rule was initiated. They attributed authority to change rules only to the child who initiated the rule, unless the rule was created collaboratively. We also asked children whether they could change norms (school/moral/artifact norms) in daily life; and found moral/artifact distinction in children’s endorsement of norm changing. These results suggest that children recognize flexibility in changing rules even in preschool years.

Keywords: cognitive development, social cognition, normative reasoning, authority, moral development

Introduction
As adults, we recognize that rule following is important, but can also reason about cases in which rules can (and may need to) be changed. Interest in the origins of children’s understanding of rules and norms dates back to Piaget, who interviewed children about rules in marble games (Piaget, 1965). Based mainly on naturalistic observations and interviews, Piaget argued that children’s understanding of rules starts out rigid and then becomes flexible. Young children start from viewing rules as eternal, fixed and unalterable, while later (at around 10 years old) understand that rules are alterable based on mutual agreement.

This idea that young children view rules as fixed has some support from recent research showing how important rule following and rule enforcing is to very young children. For example, from the second year of life, children begin to be aware of and respect various rules in their families (e.g. Dunn & Munn, 1985, 1987). Observational studies of family interactions have shown that toddlers talk about permissibility of actions and use social rules to explain and justify their behaviors in their conflicts with parents and siblings (Dunn & Munn, 1985, 1987). A series of experimental studies have shown that toddlers enforce arbitrary rules even on strangers (Rakoczy, Warneken, & Tomasello, 2008). Children spontaneously protest and criticize rule violators, but do not criticize same act that does not constitute a violation of a rule (Rakoczy, 2008; Wyman, Rakoczy, & Tomasello, 2009).

Also, younger children are more likely than older children to emphasize the role of rules and social norms in their causal-explanatory reasoning about human behaviors. For example, Kalish and his colleagues (Kalish & Lawson, 2008; Kalish & Shiverick, 2004) have found that four-year-olds are more likely to make predictions about people’s future behaviors based on social norms over personal preferences. It is not until age eight that children shift away from norm-based explanations to explanations based on personal preferences.

Paralleling the way preschoolers understand the norms governing human behavior, they exhibit a “functional fixedness” in their understanding of the norms governing artifact usage. In some cases, when shown a function of an artifact, they refused to use the object for alternative feasible purposes or other objects for the same purpose (e.g. Casler & Kelemen, 2005; Kelemen, 2004). In other cases, though they allow multiple uses, they believe that only one is the norm (e.g. Vredenburg, Kushnir & Casasola, 2014).

From a simple reading of these examples, it seems that children are quite rigid in their beliefs about rules. But even toddlers, and certainly preschoolers, show some flexibility as well. For example, they show context-sensitivity: distinguishing between moral rules, which pertain to violations of common good, justice and others’ wellbeing (e.g. harming and not sharing), and conventional rules, which are arbitrarily decided by social groups. These distinctions influence how young children judge rule violations in terms of seriousness, contingency and generalizability; they rate conventional transgressions as less serious, more contingent on the presence or absence of rules and less generalizable across different contexts than moral transgressions (e.g. Nucci & Nucci, 1982; Smetana, 1981; Turiel, 1998).

There are other, more indirect indications that young children may not be so rigid. For one thing, the success of the “protest” paradigm rests on fact that children learn new rules quickly and easily (e.g. Rakoczy, Brosche, Warneken, & Tomasello, 2009; Rakoczy et al., 2008). Also, at five years old, children spontaneously create their own rules to coordinate themselves in games, and even negotiate rules collaboratively with others in cases of conflict (Göckeritz, Schmidt, & Tomasello, 2014; Köymen et al., 2014). Finally, children often make up rules in make-believe games when they play alone or with friends (Taylor, 1999).

We offer a proposal to resolve these conflicting findings: our hypothesis is that children’s understanding of norms and rules is flexible, and that fixedness arises due to
considerations of authority that govern the formation and/or enforcement of rules. Children’s considerations of authority have been studied in cases of object ownership (e.g. Neary & Friedman, 2014) and creator intent (e.g. Diesendruck, Markson, & Bloom, 2003), and in such cases young children consider authority when making decisions about who can possess an object, determine its purpose, or distribute resources. Thus, we propose that, as a guiding principle, children consider the issue of authority over rules (for example: were the rules made by an individual, by collaborative agreement among members of a group, or by some other means?) in deciding whether the rules are fixed or flexible.

In order to test this idea in the present study, we ask young children an important question about flexibility – that is, whether rules can change and who can change them. Importantly, we vary the way in which the rules are introduced and examine whether children endorse rule changes, under what conditions they do, and whether their endorsements change with age. We choose to study children ages 4 through 7, as this is a time in which children’s normative reasoning undergoes important developments (e.g. Kalish & Shiverik, 2004)

Our main comparisons of interest come from the manipulation of individual or collective authority. First, we manipulated whether the game was solitary or social. Based on prior work, children may be more rigid when rules apply to a social context than to a solitary individual (where, for example, the rule is indistinguishable from a personal preference).

Second, we manipulated whether the rule was initiated by an adult authority figure or by the children themselves. Once again, based on prior work, children should be more rigid when the rule comes from an adult authority figure.

Third, we manipulated whether the rule was initiated by one of the children (i.e. a “leader” and his/her “followers”) or by all of the children through a collaborative agreement. Since there was no adult authority, it is an open question whether children would view the authority of the “leader” child as enough to warrant permission to change the rules. Also, though past work has shown that children appreciate and honor joint commitments (e.g. Warneken, Gräfenhain, & Tomasello, 2012), it is still an open question whether collaborative agreement could lead them to endorse any child changing or of no child doing so.

Our task began with children viewing videos of other children playing games. The solitary and group contexts were presented within subjects. The different group contexts were randomly assigned between subjects. The rule of the game was initiated either: 1) by one of the children, 2) by collaborative agreement of all the three children or 3) by an adult. Children were then asked whether each character in the videos could change the rules.

We also surveyed children regarding whether they believed children could change norms in daily life (school norm, moral norm, and artifact norm). We included this additional measure for two reasons. One, we were interested in whether children would ever endorse children changing rules that are made by adults. Recent studies (Chernyak & Kushnir, 2013; Chernyak, Kushnir, Sullivan, & Wang, 2013) have found that preschool children do not tend to endorse the freedom to violate social and moral norms, but that this changes with age. Also, consistent with social domain theory (e.g. Turiel, 1998; Smetana, 1981), children are more likely to say that they can choose to violate social and artifact conventions (such as what to wear, where to eat, etc) than moral norms (harm, fairness, helping). We expect to see that if children endorse norm changing in our task at all, it would be in accordance with this moral/conventional distinction.

Importantly, too, we were interested in whether there was any consistency in individual children’s beliefs about game rule changing and norm changing. Thus, we explored the question of whether children’s attitudes about the rules of the games in our artificial lab task would be in accordance with their beliefs about the types of moral and conventional norms they encountered in their own daily lives.

Method

Participants

Sixty-nine children aged 4-7 years old (M = 5.57, SD=0.99) participated. Participants were recruited from preschools, afterschool programs and museums in a small university town. Two additional children participated but were replaced because of the experimenter’s mistakes.

Figure 1. Screenshots of the Videos Used in the Video Task (Above: alone video; bottom: group video).

Materials

The materials included 8 videos showing children playing games and a questionnaire with 3 vignettes. The videos were filmed with children of around 9-10 years old who were able to act consistently across videos. Half of the videos were boys, the other half were girls. Two videos were of a boy/girl playing a stacking game alone (Alone Video), six videos of three boys/girls playing a sorting game together (Child Rule, Collaborative Rule, Mom Rule). The genders of the characters were counterbalanced across participants; if participants saw the girls together, they saw the boy alone, and vice versa. The alone videos were about 20 seconds each, and the group videos were about 34 seconds each.
Procedure
All children were interviewed in a quiet corner or a separate room at the local schools or the museum. The interview consisted of two parts: a video task and a questionnaire. All the participants completed the video task first, following by the questionnaire.

Video task Each child was shown two videos (order counterbalanced). Children were randomly assigned to view one of the three group videos (Child Rule, Collaborative Rule, Mom Rule) where three children were playing a sorting game (sorting balls with different colored stickers into baskets) together. Each child also saw the Alone Video where one child was playing a stacking game (stacking blocks of a certain color into a tower) alone.

Child Rule: Before showing the video, the experimenter pointed to each of the characters in the video and introduced their names, and said, “They are friends and they are going to play a game together.” Then she pointed to the child in the middle and said “John/Sophie has a rule for this game. Let’s see what rule John/Sophie has for this game.” Then the experimenter played the video. Figure 1 demonstrated the screenshots of the videos. In the video, there were a bunch of balls with either yellow or blue stickers on the table. The three characters sat in a triangle facing each other. The child sitting in the middle said, “I have a rule for this game. Blue stickers, here; yellow stickers here. Let’s play together.” Then the three children played together following the rule and finished sorting the balls.

Collaborative Rule: The procedure was similar to the Child rule condition except the experimenter introduced the video by saying, “They are going to make up a rule together.” In the video, the center child proposed the rule, then looked at the other two children for agreement. One at the time each of the other two children made eye contact and nodded to the center child, indicating agreement, before they began the game. We used this type of silent “assent,” rather than having all three children converse and decide collectively (e.g. Köymen et al., 2014) in order to keep the videos as similar as possible.

Mom Rule: The participant was told, “John’s mom has a rule for this game.” In the video, a woman walked in the screen and made eye contact with the children and said, “I have a rule for this game” then stated the same rule as in the other two conditions, “blue stickers here; yellow stickers here.” Immediately after the mom left, the children began playing, in exactly the same way as the other two group videos.

Dependent measures: After showing each video, the experimenter asked the participants if they remembered the rule mentioned in the video to make sure that they were paying attention and understood the video. If the participant didn’t answer it correctly, the video was shown again. Children correctly answered the rule of the game 93.5% of the times when shown the video for the first time. Remaining participants correctly answered the rule after being shown twice. After that, the participants were asked two critical questions (order counterbalanced). One about the centerchild “Now John/Sophie wants to change the rule of this game. He wants the rule to be that yellow stickers here and blue stickers here (switching the places putting the color of the stickers), Can John/Sophie just change the rule?” The other question is about one of the other two children (non-center child): “Now Andy/Julia wants to change the rule of this game. Can he/she just change the rule?” In the mom rule condition, in addition to the two questions about the center child and one of the non-center children, the experimenter also asked whether the mom could change the rule if she wanted. The participants were also asked “why” after the yes/no responses.

Alone Video: In the Alone Video, the experimenter first said, “This is John/Sophie. John/Sophie is playing alone. He/She has a rule for this game. Let’s see what rule he/she has for this game.” In the video, there were a bunch of either red or green blocks on the table. The child said, “I have a rule for this game. Red ones make a tower, green ones stay flat.” Then the child finished playing with the blocks following the rule. After being shown the video, the participants were asked the same rule-changing question as in the group video (but the rule change was to stack the other colored blocks).

Questionnaire After the video task, all participants were also read a questionnaire. The questionnaire consisted of 3 items in the following general format:

“There is a rule at Lily’s school. The rule is that kids sit in red chairs during lunch. Lily always follows this rule and sits in the red chair during lunch. But now, Lily wants to change the rule. She wants the rule to be that kids sit in green chairs during lunch. Can Lily just change the rule? Why?”

We included three items: school norm, moral norm, artifact norm. In School norm, the character in the story wants to change an arbitrary rule at school (sitting in red chairs during lunch). In Moral norm, the character in the story wants to change a moral norm (sharing with siblings). In Artifact norm, the character in the story wants to change a known artifact convention (using umbrella when it’s raining). The participants were also asked “Why” to explain their responses. The orders of the three items were fully counterbalanced across participants.

Coding
For each question, participants were given a score of “0” if they answered “no” and “1” if they answered “yes”. The first author and a research assistant coded participants’ responses. Reliability between coders was 99.08%.

Results
We first checked if there were any order effects or gender effects and found no effects of order or gender in any of the questions (Fisher’s exact test, p’s > .05). So we combined the data of different orders and genders together in the following analysis.

Video task
Figure 2 demonstrated the proportion of “yes” responses to the rule changing questions in each condition.
**Child Rule** In the child rule condition, the significant majority (77%) of the children answered that the child who made up the rule (center child) can change the rule, Binomial $p = .017$. About half of those who answered “yes” (47%) gave the explanations “he made up the rule” or “it’s his game.” In contrast, only a few children (36%) answered that the child who did not make up the rule (non-center child) could change the rule, Binomial $p = .286$. Out of those who answered “no,” half gave the explanations “he didn’t make up the rule” or “he’s not the boss.” A McNemar’s test showed that significantly more children attributed an ability of changing the rule to the child who made up the rule than the children who didn’t make up the rule, $p = .012$. There was no correlation with age in this condition ($p’s > .05$).

**Collaborative Rule** In the collaborative rule condition, the majority (75%) of the children answered that both the center child and the non-center child could change the rule of the game, Binomial $p’s < .023$. McNemar’s test showed no significant difference between the number of participants who said the center child could change the rule and the number of participants who said the non-center child could change the rule ($p = 1.0$). We then added up each participant’s “yes” responses to the center child and non-center child together, and found that this score was negatively correlated with age in months ($r = -.406 p = .049$). This suggested that young children were more likely to say that both children could change the rule, while older children were more likely to say that *neither* could do so.

**Mom Rule** In the mom rule condition, 39% of children answered that the center child could change the rule, and 35% answered that the non-center child could change the rule, Binomial $p’s > .05$. A significant majority (87%) of the children answered that the mom could change the rule, Binomial $p < .001$. The most frequent explanations they gave referred to the fact that the mom made up the rule (25%) and that the mom was the authority figure (e.g. “Because she’s the boss”, 15%). McNemar’s tests showed that children were more likely to think that mom could change the rule than either the center child ($p = .001$) or the non-center child ($p < .001$), but there was no significant difference in proportion of “yes” responses to questions about the center child and the non-center child ($p = 1.0$), Also, no age effect was found in this condition ($p’s > .05$).

We also compared children’s responses to the rule-changing questions in the three different conditions. Compared to the Mom Rule condition, participants in the Child Rule and Collaborative Rule conditions were significantly more likely to answer that the center child could change the rule (Fisher’s exact test, $p’s < .05$). Participants in the Collaborative Rule condition were significantly more likely to respond that the non-center child could change the rule compared to the participants in the Child Rule condition (Fisher’s exact test, $p = .016$) and the Mom Rule condition (Fisher’s exact test, $p = .008$).

**Alone Video** We also looked at children’s responses to the alone video, where one child was playing alone. An overwhelming majority of the participants answered that the child in the video could change the rule, Binomial $p’s < .05$. The most frequent explanations they gave referred to the fact that the child made up the rule (e.g. “Because it’s her game”, 36.2%) or that the child was by herself (e.g. “Because she’s playing alone”, 13.8%). McNemar’s tests showed that children were more likely to say that the center child could change the rule when he/she was playing alone than playing in group when the rule was made by mom ($p = .008$). The difference was marginally significant in the Collaborative Rule condition ($p = .063$) and not significant in the Child Rule condition ($p = 1.0$). There was no correlation with age in *Alone Video* ($p’s > .05$).

**Questionnaire**

The questionnaire consisted of three questions respectively referring to school norm (sitting in the red or green chairs during lunch), moral norm (sharing or not sharing with brothers) and artifact norm (holding an umbrella or holding a bucket in the rain). Figure 3 showed the proportion of “yes” responses the participants gave in each of the stories. Binomial tests showed that the significant majority of the children (65%) answered that the character in the story was not able to change the rule at school ($p = .015$). A significant majority of the children (74%) answered that the character in the story was not able to change the moral rule, ($p < .001$). However, about half of the children (49%) said that the character in the story could change artifact rule ($p = 1.0$). McNemar’s tests also revealed that significantly more children answered that the child in the stories could change the artifact rule than the school rule ($p = .013$) or the moral rule ($p < .001$). No correlation with age was found in any of the three stories ($p’s > .05$).

We then examined the relationship between children’s responses to the rule-changing questions in the games and their responses to rule-changing questions about everyday life. We added up each participant’s “yes” responses to the three norm questions and found that this score was significantly positively correlated to their responses to the rule-changing question of the center child in the Child rule condition and the Mom Rule condition, even when age was
controlled (Child Rule: $r = .473$, $p = .03$; Mom Rule: $r = .821 \ p < .001$). The correlation was marginally positive in the Collaborative Rule condition ($r = .377$, $p = .076$). This score was also positively correlated to children’s responses to the non-center child in all the three group games, when age was controlled ($p’s < .05$). Thus, children who thought that the everyday norms could be changed also tended to endorse rule changing in the video task.

In a second analysis, we gave children a “1” for every response consistent with the distinction between artifact norm from moral or school norm (i.e. a “1” for “no” to moral and school and a “1” for “yes” to artifact). We found that this score was marginally negatively correlated with their responses to the non-center child changing rules in the Mom Rule game ($r = -.49$, $p = .021$), while not significantly correlated with the responses to the center child or any child in the Collaborative Rule or the Child Rule game ($p’s > .05$). This suggests that those children who make a stronger distinction between the moral/school and artifact norms endorsed less authority for the children to change rules created by adults.

![Figure 3. Proportion of “Yes” Responses to the Rule Changing Questions for the School Norm, Moral Norm and Artifact Norm Items (asterisks indicate a significant difference from chance: (*) $p<.05$, (**) $p<.01$, (***) $p<.001$, using Binomial tests).](image)

**General Discussion**

Our results reveal that young children’s beliefs about who can and cannot change rules are sensitive to considerations of the authority over the formation of the rules. Children recognized that game rules could be changed when a child had made up the rule for his/her own solitary play. But when the rules were made for playing with a group, children took into account how the rules were initiated even though all the other information (e.g. the content of the rule, the participants of the game) were kept the same across contexts. When the rule was initiated by a single player, children believed only that player had the authority to change the rule, and not his/her playmates. When the rule was made through a collaborative agreement among all three players, children said that any could change the rule. When the rule was initiated by an adult (mom of one of the children), children said that only the adult had the authority to change the rule of the game, and not any of the players.

Our results complement prior work focused on children’s respect and enforcement of rules by showing that children recognize that there is flexibility in changing rules, provided the agent of change has some authority to do so. The recognition of who has that authority aligns well with existing knowledge in several different areas of research, including children’s understanding of authority, of ownership and creator intent, and of the norms of collaboration. For example, children’s responses that rules which come from mom cannot be changed by children is consistent with the evidence shown in previous research that young children recognize parents as important authority figures (Laupa, 1995). Children’s belief that a rule initiated by a single child for group play can only be changed by that child is consistent with previous work on children’s understanding of ownership of objects (e.g. Neary & Friedman, 2014) and creator intent (e.g. Diesendruck, Markson, & Bloom, 2003). Just like with objects, young children may develop awareness of ownership and/or creation of rules: they understand that the person who “owns” the rule (in the sense that they created it) has the authority to change the rule, while other people do not have the authority.

Children’s response that any group members has the same authority to change a collaborative rule is consistent with prior work on children’s understanding of joint commitments to collaborate (e.g. Warnken et al., 2012). It is noteworthy, however, that there were age differences, where young children were more likely to say that both children could change the rule and older children were more likely to say that neither could do so. This may have been a difference in the way children interpreted this one instance of agreement. Younger children may have taken the set up to imply agreement in general: that is, that if one member of the group changed the rule the other members would agree. Older children, on the other hand, may require more evidence to assume that children who agree once will always agree with their playmates. This would be consistent with the fact that, with age, children accumulate experiences in which friends do not necessarily agree. It would be interesting to explore this hypothesis directly. For example, we could examine how children’s changing beliefs about friendship relate to their responses to our task. We could also explicitly manipulate whether or not other players always agree on the rule across games, only sometimes agree, or never agree.

Finally, it was interesting to find that, in some cases, children said that they could change the norms in their everyday lives. Consistent with prior work on freedom on choice (Chernyak et al, 2013) and with the predictions of social domain theory (e.g. Trudeau, 1998; Smetana, 1981), children were more likely to say that they could change artifact norms than moral norms.

The tendency to say “yes” to game rule changing and also “yes” to norm changing, however, suggests that perhaps
children didn’t distinguish between moral norms, conventional norms, and game rules initiated by children. This is less of a worry, however, when combined with the result that children whose responses were most consistent with this moral/conventional distinction were most likely to endorse the mom’s authority in the game scenario, but no more likely to endorse the child’s. This final result indicates that children do distinguish between children’s rules for their own game and rules set by an authority figure, but leaves open questions about the nature and extent of this distinction.

In summary, our results demonstrate that belief in flexibility in changing rules is present even in the preschool period. Young children understand the importance of following and enforcing rules and norms, but at the same time can also reason about how rules can be changed and how advances take place in human activities. Critically, this study shows that children consider the issue of authority over rules in deciding whether rules can change and who can change them. Taken together, this study suggests that the important feature of human thinking - that we make rational and flexible reasoning about human activities - is present in young children’ beliefs about rules and norms.

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References


